TEXTILE TECHNOLOGY DIGEST

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ABSTRACTS

FIBERS A

How 8 fibers compare in heat resistance.

J. F. deBordenave and D. J. Bringardner (E. I. du Pont de Nemours and Co., Inc.). *Textile World 106:* 68-76 (September, 1956).

New data on fiber deterioration during hot-wet and hot-dry exposures are presented in chart form. The fibers included are acetate, Dacron, nylon, Orlon, rayon, cotton, silk, and wool.

The variation of fineness within samples of various staple fibers.

D. H. Morton (Courtaulds Ltd). *J. Textile Inst. 47:* T422-T429 (August, 1956).

The variation of fineness within samples of 18 natural and man-made staple fibers has been investigated. The fineness of individual fibers was measured by means of a vibroscope, the use and construction of which are briefly described. The influence of the variation on the variability of yarns spun from the fibers is discussed. The effects of the variation on single-fiber testing, with particular reference to tensile strength, are considered. Natural and regenerated protein fibers are found to have, in general, a broader distribution of fineness than cellulosic and synthetic fibers. Most distributions have a strong positive skew, but the cellulose acetate fibers have distributions with negative skew. It is shown that, where the variability of fineness is high, a considerable improvement in accuracy or a saving of labor can be obtained by measurement of individual fiber fineness in carrying out single-fiber tests. 14 references.

NATURAL FIBERS A 1

The classification of cotton.

U. S. Agricultural Marketing Service. Cotton Division. Wash., 1956. 56 p. Available from Superintendent of Documents, Government Printing Office, Washington 25, D. C. 30 cents. Miscellaneous publication, no. 310.

Achievement of lighting standards for the grading of cotton.

D. Nickerson. Wash., U. S. Agricultural Marketing Service, 1956. 29 p.

The development since 1914 of lighting for grading rooms is presented. Specifications are provided for lighting units, the color of surrounding conditions, and instructions for maintenance. The importance of spectral quality of lighting and its relation to the product is discussed, and attention called to the corollary that an ideal substitute for daylight is one under which the appearance of samples is the same as under daylight, while a satisfactory substitute is one under which the appearance of samples is sufficiently duplicated to provide satisfactory grading or inspection.

Automatic lint cotton sampler.

M. R. Cooper. Wash., U. S. Agricultural Marketing Service, 1955. 3 p.

The mechanical sampler described extracts, accumulates, presses, and packages a consecutive series of portions of lint cotton taken from the lint flue during the ginning of a bale.

Effect of flax straw storage on line fiber yield.

N. R. Brandenburg and J. E. Harmond. *Textile Quart. 6, No. 2:* 101-104 (1956).

Evaluation of seasoning was conducted by storing two types of retted straw and processing them at scheduled periods, conditioning each lot to the same moisture content before picking, processing all straw in a standard manner on the same picker, and comparing the resulting fiber yields. Line fiber yields from a long type of flax straw were found unaffected by seasoning and remained essentially constant over a thirty month period. Line fiber yields from a short straw type apparently were influenced by the seasoning; these yields increased about 2% during the first twelve months and remained constant thereafter.

Hard fibers: sisal-abaca-mauritius hemp-phormium.

A. E. Haarer. *Textiles in Ind. 1:* 43-45 (August, 1956).

The author surveys the production and potential outlets of these 4 fibers.

The distribution of ortho- and para-cortical cells in wool and mohair.

R. D. B. Fraser and T. P. Macrae (Wool Textile Research Laboratory, Australia). *(Letter to the editor). Textile Research J. 26:* 618-619 (August, 1956).

MAN-MADE FIBERS A 2

What's happening to synthetic fibers.

P. M. Thomas. *Textile World 106:* 82-83, 117 (September, 1956).

Brief survey covering new fibers and fiber improvements during the past year.

Tubular filaments and fibers.

O. E. Bruck. *Can. Textile J. 73:* 83-89 (August 24, 1956).

The experimental production and unusual properties of air-filled filaments and fibers are presented. Diagrams. 7 references.

The relationship between the chemical and the man-made fiber industries.

H. A. Thomas. *Chemistry & Industry No. 33:* 852-857 (August 25, 1956).

This article on the interdependence of the textile and chemical industries discusses: the qualifications of the textile technologist; the classes of man-made fibers available; the raw materials supply position; the properties of man-made fibers and their influence on end uses; and crease- and shrink-resist finishing of spun rayons. 9 references.

Polymer progress. 1956 series. Part 3. Fibers from formaldehyde.

J. A. Somers. *Man-Made Textiles 33:* 62-63 (August, 1956).

Production methods and properties of formaldehyde polymers are discussed. Patent references are included.

The versatility of nylon ropes.

Textiles in Ind. 1: 39-41 (August, 1956).

The advantages of nylon over natural fibers for rope are outlined, and examples of its use are given.

Some effects of temperature on wet viscose rayon. Part 1. Water-imbibition.

J. F. Clark and J. M. Preston. (Univ. of Manchester). *J. Textile Inst. 47:* T413-T416 (August, 1956).

Results with the centrifuge method, used to measure the effect of temperature on the swelling of viscose rayon and cotton, show that a minimum occurs in the temperature-swelling curve for both fibers at about 50-60°C. Results are also given for the irreversible change in the water-imbibition of viscose rayon which occurs when these fibers are heated in water for short periods. 11 references.

Some effects of temperature on wet viscose rayon. Part 2. Tensile properties.

J. F. Clark, J. M. Preston and B. C. Shroff (Univ. of Manchester). *J. Textile Inst. 47:* T417-T418 (August, 1956).

Load-extension curves for completely wet viscose rayon have been measured at temperatures between 0° and 100°C, and the effect of temperatures between 15°C and 100°C on the relaxation of stress with time in stretched viscose rayon immersed in water has also been studied. 7 references.

Some effects of temperature on wet viscose rayon. Part 3. Discussion.

J. F. Clark and J. M. Preston (Univ. of Manchester). *J. Textile Inst. 47:* T419-T421 (August, 1956).

An explanation of the results given in Parts 1 and 2 is based on the assumption that above 50°C there is a rapid rise in the rate of dissociation of cellulose-cellulose cross bonds. 11 references.

YARN PRODUCTION B

The cotton waste industry. Part 4.

Platts Bull. 9, No. 1: 20-25 (1956).

Machinery for opening hosiery clippings and certain hard wastes, and for carding soft wastes is described. Diagrams.

Worsted spinning. (Die Kammgarnspinnerei).

R. Fahrbach. Stuttgart, Konradin-Verlag Robert Kohlhammer, 1954. 359 p.

A complete treatise, from wool to spinning. However, the American System, using pin drafters, is given relatively brief mention.

OPENING, PICKING, FIBER PREPARATION B 1

Modern jute manufacturing practice: the technique of opening and softening.

S. A. G. Caldwell. *Textile Mfr. 82:* 396-399 (August, 1956).

The blending and softening of jute is discussed with emphasis on the Goods machine for the combined softening, spreading, and hackling of jute. Formulas for softening and lubricating agents are included. Photographs.

A manual for testing procedures. Part 2. Stock weighing.

G. Guggenheim. *Textile Bull. 82:* 63-65 (August, 1956).

A test is outlined for determining how much stock should be fed into the opening hoppers in order to get a predetermined amount from the pickers.

CARDING AND COMBING B 2

Here's a checklist for quality defects in carding.

J. E. Allen. *Textile World 106:* 109 (September, 1956).

The feeding of slivers to a fully automatic set of cards for wool.

E. Sattler. *Melliand Textilber. 37, No. 5:* 514-519 (1956); *in German.* Through *BCIRA 36:* 413 (1956).

A critical examination of the sliver-feeding mechanisms shows that, with the exception of the lateral delivery rate which determines the degree of doubling, the speed of the machine components cannot be changed arbitrarily without affecting the evenness of the sliver.

The new Platt narrow worsted card.

Platts Bull. 9, No. 1: 18-19 (1956).

Brief description of the advantages of the new machine.

Jute carding practice and associated problems. Chapter 6. Quality control and quality control factors. Chapter 7. Production control factors. Chapter 8. Summing up.

C. M. Watson. *Textile Quart. 6, No. 2:* 105-114 (1956).

DRAWING AND ROVING B 3

Model M roving assembly.

Saco-Lowell Bull. 28: 48-53 (July, 1956).

A discussion of the factors to be considered in choosing between the Model M and FS-2 roving frames is followed by a description of three basic sub-assemblies in the Model M system: the rolls, the scissors traverse motion, and the roll pressure system, illustrated with photographs and diagrams.

SPINNING, WINDING, TWISTING B 4

New top arm drafting system.

Casablancas High Draft Co. Ltd. *Textile Recorder 74:* 59-60 (September, 1956).

In principle the new GX is a three line Casablancas system providing double apron fiber control in the main drafting zone between the front and middle rollers. Photographs. Diagrams.

Mill test procedures. Part 4. Tests for better spinning.

N. L. Enrick. *Modern Textiles Mag. 37:* 63-64, 68, 72 (June, 1956).

Tests for carded and combed yarns, showing procedures, illustrative forms, and evaluation of test data. Tests covered are combing, spindle slippage, yarn appearance, and yarn strength.

Mill test procedures. Part 5. More tests for better spinning.

N. L. Enrick. *Modern Textiles Mag. 37:* 40-44 (August, 1956).

Supplementing the spinning test procedures in part 4, the following methods of sampling, testing, evaluation, and interpretation are furnished: idle spindles check (including worksheet and summary recording form), yarn twist determination by several alternative methods, yarn twist contraction, and yarn single end strength and elongation.

How to spin mohair.

W. J. Wood. *Textile Ind. 120:* 151-153 (September, 1956).

Lay-out for spinning 30s yarn from 4s mohair.

Limit spinning of worsted yarns determined by fiber diameter.

H. A. McLean. *Wool Record 90:* 36-37 (August 9, 1956).

Discussion of factors influencing the practical limits of worsted spinning.

Direct spinning of high tenacity acetate tow.

R. Temmerman. *Ann. Sci. Textiles Belges No. 1:* 208-222 (1956); *in French.* Through *BCIRA 36:* 413 (1956).

The properties of yarns obtained from high-tenacity acetate tow by direct spinning were examined, and it was found that this type of yarn has very high strength, is very regular, and does not contract on wetting. It resembles in some respects natural silk yarn produced by the schappe spinning process. Experimental fabrics woven from the direct-spun acetate yarn were comparable with those from yarns obtained by other processes.

The Gwaltney spinning room.

Saco-Lowell Bull. 28: 6-9 (July, 1956).

Performance and economics of Gwaltney spinning frames in mill installations.

Two new frames for large package spinning.

Saco-Lowell Bull. 28: 16-23 (July, 1956).

Construction and operation of the standard Can-Spin frame, model SG3-C, built especially for cotton yarns and synthetics whose staple length does not exceed 1.5 inches, and where the count is up to 10s and not over 12s, and of the Spinster, designed especially for the production of yarns for the carpet and rug trade, for coarse-count worsteds, and high-grade hand knitting yarns. Photographs. Diagram.

MR3 ring spinning frame.

Platts Bull. 9, No. 1: 4-17 (1956); *Textile Wkly. 56:* 306-310 (August 3, 1956); *Textile Merc. 135:* 223-228 (August 10, 1956).

General features and mechanical details are illustrated with photographs and diagrams.

How to select the right traveler.

E. H. Helliwell. *Textile World 106:* 113, 298 (September, 1956).

The guiding principles in traveler selection for cotton spinning are discussed.

Lubrication of the textile spindle bearing.

J. P. Vidosic and R. D. Cheverton (Georgia Inst. of Technology and Carbide and Carbon Chemical Co.). *Textile Research J. 26:* 622-629 (August, 1956).

Analysis of the factors involved in the lubrication of the oil-lubricated, cast-iron bolster spindle. Diagrams. Graphs. Tables. 7 references.

Balancing high speed textile spindles.

Fibres 17: 262-264 (August, 1956).

Dynamic balancing machines using electronic circuitry to give very accurate readings both of the position and amount of the correction required in two planes to achieve correct balance are discussed, and the dynamic balancing of a heavy-duty spindle for the manufacture of Terylene is described.

How modern are your twisting methods?

A. L. Landau. *Textile World 106:* 102-103, 292, 294 (September, 1956).

For producing more evenly twisted yarns of high strength and elasticity, the following factors should be controlled: positioning rolls and the yarn angle; maintaining constant spindle speeds; finding the right twist multiplier; and using twist-on-twist for high twist.

Saco-Lowell paper twister.

Saco-Lowell Bull. 28: 24-25 (July, 1956).

Specifications and operation of paper yarn twister. Photographs.

Influence of the method of cabling on the mechanical characteristics and fatigue strength of rayon tire cords.

G. Quintelier and M. Warzee. *Ann. Sci. Textiles Belges No. 1:* 114-138 (1956); *in French.* Through *BCIRA 36:* 414 (1956).

Improvements obtained by adopting a new cabling system for two-ply cords are studied.

The volume of yarn on cops with different dimensions.

J. Depommier. *Industrie Textile:* 37-38 (January, 1956); *in French.* Through *BCIRA 36:* 383 (1956).

The volume of yarn on a cop is limited internally by the truncated tube and externally by a cylindrical portion with a section at each end having the form of a truncated cone. A table is given showing numbers proportional to the yarn volume, on bobbins of different dimensions, as a function of the mean diameter of the tube portion under the yarn and of the external cop diameter. The numbers are the numerical value of the difference between the squared external and mean tube diameter. Comparison between these numbers is only possible for cops of the same lengths. If these are different, it is necessary to take into account the ratios of the yarn volumes, which are shown in a second table. The correct use of these tables is explained by examples.

YARNS B 5

The effect of storage on shoe threads.

E. B. Frederick and W. Zagieboylo. Natick, Mass., U. S. Quartermaster Research and Development Center, 1955. 27 p. PB 111 976. Available from Office of Technical Services, Washington 25, D. C. $1.00.

The effect of storage on the stress-strain properties of stitching thread (cotton, linen, nylon, and polyester fibers) for military footwear held under controlled storage conditions was evaluated at six-month intervals over a period of two years. On an overall basis, the synthetic threads were found to have lost less strength than the natural fiber threads.

FABRIC PRODUCTION C

WARPING, SLASHING, YARN PREPARATION C 1

Warp sizing. Part 5. Materials for sizing (continued).

P. V. Seydel (Seydel-Woolley and Co.). *Textile Ind. 120:* 132-149 (September, 1956).

Lubricants and softeners are considered.

Some new equipment for the study of sizing in the laboratory.

R. Schutz, J. Chabert, and V. Dehr. *Ann. Sci. Textiles Belges No. 1:* 276-290 (1956); *in French.* Through *BCIRA 36:* 414 (1956).

The apparatus described consists of a sizing machine and a drier, constructed so as to reproduce as far as possible practical conditions. The reproducibility of the results is very good, and handling of the apparatus is simple and easy.

A five-form control system for winding and warping synthetics.

J. C. Faulkner. *Textile World 106:* 88-90, 272 (September, 1956).

An adequate supply of filling without overproducing and with minimum creel changes are two advantages of this planning system. Sample forms are included.

Allotment of machines and time study wages in warp winding.

H. Rotter. *Melliand Textilber. 37, No. 4:* 482-484 (1956); *in German.*

Winding and tension conditions on quick traverse winding frames with high thread velocities.

F. Walz and W. Kamm. *Melliand Textilber. 57, No. 4:* 383-388 (1956); *in German.* Through *BCIRA 36:* 414 (1956).

The relationship between yarn tension and, respectively, the number of yarn breakages and winding-off velocity for various cam forms, layer lengths, and cone lifts was investigated by carrying out winding experiments on the quick traverse winding machine (type BKN by Schlafhorst), without and with the use of the Schlafhorst winding-off accelerator. The latter is assumed to improve the winding conditions by controlling the balloon.

Yarn tension measurement by measuring brakes.

K. F. Seim. *Melliand Textilber. 37, No. 4:* 410-413 (1956); *in German.* Through *BCIRA 36:* 414 (1956).

The replacement of existing yarn brakes by built-in or attached measuring brakes with graduated dial and adjusting means to the control values is discussed, with special reference to the Setex measuring brakes, an illustration of which is given.

WEAVING C 2

A study in loom fixing. Part 9.

F. D. Herring. *Textile Bull. 82:* 65-68 (August, 1956).

Troubles associated with filling fork prongs, check strap, binder spring, and frog and protector rod assemblies.

Secondary aspects of the power loom.

W. Middlebrook. Emmott and Co. Ltd., Manchester, England, 1955. 129 p. Textile Manufacturer monographs, no 13. 70 cents.

This monograph is a companion booklet to *Primary Aspects of the Power Loom.* The two survey the main aspects of practical weaving. Diagrams. Photographs.

Sampling and small width tufting machine.

David Almond Ltd. *Skinner's Silk & Rayon Record 30:* 827 (August, 1956).

Features of the Venor 30-needle carpet machine suitable for testing new yarns and backings, as well as manufacturing stair-carpeting. Photographs.

A new method of studying shuttle movement.

S. R. Gillanders and D. C. Snowden (Leeds Univ.). *Man-Made Textiles 33:* 58-60 (August, 1956).

Investigation of the possibilities of determining shuttle speeds and accelerations by the induced voltages set up in reed and other wires by a shuttle-borne magnet, using an oscillograph as the indicating and recording instrument. Photographs of shuttle traces.

Simplified shuttle checking.

Tekstilstroj, Zagreb. *Textile Wkly. 56:* 331-334 (August 3, 1956).

Loom buffer for automatic cotton looms in which the shuttle check is obtained not only by hydraulic and pneumatic action, but also by an additional specially designed spring. Diagrams.

Hydraulic warp protector on the loom, using the Zarn buffer.

A. Zarn. *Melliand Textilber. 37, No. 4:* 399-401 (1956); *in German.* Through *BCIRA 36:* 416 (1956).

The use of the Zarn buffer as hydraulic warp protector is described. The action of these buffers is based on a physical law which gives a braking effect adapted to the requirement. The kinetic energy of the shuttle is immediately converted into heat and removed without wear effect on any of the machine components. The theoretical principles of the buffer, its construction, and mounting on smooth underpick and drop-box looms are discussed.

Ratchet wheel mechanism for the take-up roller on the loom.

W. T. Swatek. *Melliand Textilber. 37, No. 5:* 526-533 (1956); *in German.* Through *BCIRA 36:* 416 (1956).

Principles and various constructions of positive, negative, and compensating take-up motions are described, with reference to regular and irregular disposition of weft.

Too much spring tension can cause lazy loom action.

W. C. Westbrook. *Textile World 106:* 96-97 (September, 1956).

General rules for adjusting tensions in harness, parallel, transferrer, and protector-rod springs. Diagrams.

The electro-optical weft feeler.

Melliand Textilber. 37, No. 5: 536-540 (1956); *in German.* Through *BCIRA 36:* 415 (1956).

Purely mechanical, electro-mechanical, and electro-optical weft feelers are described, with special reference to an apparatus based on the reflection principle. The bobbins are provided with reflecting rings and the apparatus consists of a feeler head with a light source and a light-sensitive semi-conducting element (for converting the light impulses into electric current impulses), and a switch box connected with the feeler head, which is placed in the lay, by means of a shielded cable which can be easily screwed off and on. The servicing of the instrument is easy and can be carried out by untrained staff.

The evaluation of MTM (Methods-Time-Measurements) system in the weaving mill for determining the starting time.

H. P. Gadegast. *Melliand Textilber. 37, No. 5:* 611-614 (1956); *in German.* Through *BCIRA 36:* 439 (1956).

The applicability of the MTM-method to weaving is investigated and limitations of the system are pointed out.

Tips on pick-and-pick weaving.

C. Lee. *Textile Ind. 120:* 118-120 (September, 1956).

Practical tips on picking as applied to 4 x 4, Crompton and Knowles non-automatic looms of the S series. Diagrams.

Jute and linen weaving. Part 3. Loom auxiliary motions. Chapter 2. Weft-fork stop motions (continued).

W. Haggan. *Textile Quart. 6, No. 2:* 84-91 (1956).

KNITTING C 3

Automatic flat knitting machine.

Schaffhouse Knitting Machine Works Ltd. *Textile Wkly. 56:* 395-396 (August 10, 1956).

A fully automatic flat knitting machine for outerwear and rib tops, the Waga circular loop wheel knitting machine for striped plush fabrics, and a rubber thread covering machine are described.

Versatility of flat frame knitting.

J. B. Lancashire. *Hosiery Trade J. 63:* 58-62 (August, 1956).

Illustrations of the wide range of fabrics producible on the older V-type non-jacquard machines by the use of needles with two lengths of butt and by fitting special attachments.

Double-knit jersey cloths.

J. B. Lancashire. *Hosiery Times 29:* 19-21 (August, 1956).

Fabrics possible with the latest interlock machines are discussed.

Principles of hose pattern design.

W. Davis. *Hosiery Times 29:* 64-67 (August, 1956).

Elastic yarns in hosiery and knitted fabrics. Part 1.

W. E. Shinn (N. C. State College, School of Textiles). *Knitter 20:* 27-32 (August, 1956).

Patent review of machinery and fabrics. Diagrams.

FABRICS C 4

Blending and fabric performance. Part 4. Three-component blends.

J. F. Sayre. *Modern Textiles Mag. 37:* 34, 62, 71 (August, 1956).

The performance characteristics of Dacron, rayon, and Orlon; Orlon, acetate, and Dacron; and rayon, Dacron, and acetate blends of varying compositions are discussed and illustrated with graphs.

Follow these rules to eliminate set marks.

H. S. Singer (H. J. Theiler Corp.). *Textile World 106:* 86, 270 (September, 1956).

The underlying causes and some of the cures of set marks are explained. Diagrams.

Ceolon and its processing.

K. Baier. *Melliand Textilber. 37, No. 4:* 485-486 (1956); *in German.* Through *BCIRA 36:* 416 (1956).

The preparation of Ceolon products (latex-foam on polyurethane basis with no relation to natural or synthetic rubber) and their use in the textile industry (in woven and knitted fabrics) is described and discussed.

Backing compounds should be inexpensive and simple to apply.

P. Abbenheim. *Skinner's Silk & Rayon Record 30:* 795-796 (August, 1956).

The main compounds and methods for fixing the pile in tufted carpets are described. Photographs.

Children's blue jeans.

Consumer Reports 21: 420-424 (September, 1956).

Twenty-three dungarees of 10-, 11¼-, and 13¾-ounce weight were tested for abrasion and tear resistance and the tensile strength of their fabrics. Comparative ratings are given.

The effect of partial or total superposition of floats of a weave on the maximum density of the fabric.

V. G. Escobet. *Ann. Sci. Textiles Belges No. 1:* 291-311 (1956); *in French.* Through *BCIRA 36:* 427 (1956).

It is shown that the determination of the coefficients of maximum fabric density, taking into account the effect of partial or total superposition of the yarn floats, is of great importance in the manufacture of fabrics, making it possible to calculate beforehand the maximum density for any weave and any yarn count and, from the coefficient of total density (warp and weft), the maximum shrinkage of the fabric (or the degree or percentage of shrinkage in relation to the maximum). On the basis of these data it is possible to ascertain whether and to what extent the density of a fabric can be increased, and to produce new types of fabrics with a degree of shrinkage adjusted to their end-use.

Better body armor fabrics through research.

Textile Ind. 120: 110-113 (September, 1956).

Report on the programming and general results of a study made by Fabric Research Laboratories on body armor for the Navy Bureau of Aeronautics to assist in selecting the most practical fiber (and ultimately the most practical fabric) for use in a suit designed to protect an airman against flak. The application of an engineering approach to the problem was stressed. Photographs.

Simplified fabric construction.

S. Gronvold. *Tidsskr. Textiltek. 14, No. 5:* 71-73 (1956); *in Danish.* Through *BCIRA 36:* 427 (1956).

Examples of calculations based on the yarn diameter are given, which can be used in designing new fabric constructions.

Report on nonwoven textiles and plastic laminates.

Textile Organon 27: 123-125 (August, 1956).

The fibers used in making nonwoven fabrics, their manufacture, properties, end uses, and producers, and the methods of producing plastic laminates and their end uses are briefly summarized.

Nonwoven fabrics: a new textile material.

C. E. Coke (Courtaulds (Canada) Ltd). *Textile Mfr. 82:* 409-411 (August, 1956).

History, manufacture, physical properties, and uses of nonwoven fabrics. A table of data on 24 representative nonwoven fabrics from 8 American manufacturers is included. 11 references.

The development of current nylon webbings utilizing 840 denier yarns in lieu of now specified 210 denier yarns.

R. J. Neff. Wright-Patterson Air Force Base, Ohio, Wright Air Development Center, 1956. 61 p. WADC technical report 55-494.

This investigation has shown that 840 denier yarn appears as good and sometimes better than 210 denier yarn. Also, results have indicated that piece dyeing of the webbing is not only feasible, but desirable, from the standpoints of giving better original tensile strength and abrasion resistance.

The development of high strength nylon parachute fabrics.

H. J. Bickford, T. L. Rusk, Jr., and D. K. Kuehl. Wright-Patterson Air Force Base, Ohio, Wright Air Development Center, 1956. 32 p. WADC technical report 55-465.

Seven nylon fabrics, stable to dry air at temperatures up to 250°F for at least 16 hours, were developed. The fabrics ranged in strength from 200 lbs/in to 800 lbs/in, and met certain permeability requirements at two levels of differential pressures. 5 references.

Design in woven structure. Part 44. Stripe weaves.

D. C. Snowden. *Wool Rev. 29:* 41 (August, 1956).

Woven fabric construction. Part 2. Figuring by modification of ⅓ twill.

D. C. Snowden. *Man-Made Textiles 33:* 50-51 (August, 1956).

Ornamentation of apparel fabrics. Part 1. Spot designs.

V. Lobl. *Modern Textiles Mag. 37:* 33, 63-64 (August, 1956).

The four major classifications of spot designs are described, and general practices for spacing these figure weaves on the fabric are discussed.

FINISHING AND CHEMICAL PROCESSING D

Jahrbuch der Textilveredlung. Vol. 1, 1952, and Vol. 2, 1953.

VEB-Verlag Technik, Berlin. *In German.* Vol. 1, 586 p. Vol. 2, 941 p.

The first two volumes of a series, each reviewing a year's progress in textile finishing and dyeing. Extensive references, tables, diagrams, photographs, etc.

Instrumentation: an integral part of dyeing and finishing.

W. Ridley (Foxboro Co.). *Am. Dyestuff Reptr. 45:* P551-P555 (August 13, 1956).

A discussion of how measurements of time, temperature, concentration, pressure, flow, conductivity, liquid level, density, humidity, pH, redox, moisture, and viscosity, and the instruments which make them possible, are integrated with the dyeing and finishing operations.

Dyeing and finishing stretch nylon.

J. L. Wauters (Garnet Hosiery Dyers and Finishers). *Textile Ind. 120:* 97-98 (September, 1956).

Present recommendations for scouring, dyeing, and finishing Chadelon, Helanca, Agilon, and Gro-Lon hosiery.

Some aspects of modern dyeing and finishing of man-made fibers.

R. C. Geering. *Can. Textile J. 73:* 43-48 (August 10, 1956).

Recent developments in dyeing and finishing polyamide fibers, acrylic fibers, polyester fibers, and blends of acrylics and polyesters with wool. Typical formulations and procedures are included.

Dyeing and finishing of cellulose acetate yarns and fabrics.

T. Ellison (British Celanese Ltd). *Dyer 114:* 447-451 (September 16, 1955).

How tufted carpets are dyed and finished.

F. H. Cooper. *Textile Ind. 120:* 104-106 (September, 1956).

Outline of general practices employed in the dyeing and finishing of tufted carpets. Specific dyeing procedures for scatter rugs and for yardage goods are included.

Modern wool combing practice. Part 4. Preparing and carding. Part 5. Backwashing and drying.

R. Walker. *Textile Mfr. 82:* 231-233 (May, 1956); 412-414 (August, 1956).

The reasons for wool sliver backwashing, and the machinery used, are discussed. Diagrams.

CHEMICAL PROCESSES D 1

Physical properties of chemically modified cottons. Part 1. Properties of the untreated cottons.

A. W. McDonald, G. C. Humphreys, O. M. Kromhout, and J. N. Grant (Southern Regional Research Laboratory). *Textile Research J. 26:* 641-646 (August, 1956).

This first report of a series of 7 papers presents a description of the experimental procedure used, tabulations of properties of the cotton fibers and yarns made from them prior to treatment, and a discussion of the interrelationship of the physical properties of fibers and those of the yarns. Tables. Graphs. Photomicrographs. 15 references.

Physical properties of chemically modified cottons. Part 2. Effects of partial acetylation.

A. W. McDonald, G. C. Humphreys, R. S. Orr, and J. N. Grant (Southern Regional Research Laboratory). *Textile Research J. 26:* 646-652 (August, 1956).

Results of measurements of certain important physical properties of partially acetylated (24%) cotton fibers and yarns, the per cent changes from those of the untreated samples, and the dependence of the physical changes on the characteristics of the sample. Tables. Graphs. 11 references.

Effect of alkaline hydrolysis on the properties of cyanoethylated cotton.

L. W. Mazzeno, Jr., R. M. Reinhardt, J. D. Reid, and J. B. Dickson (Southern Regional Research Laboratory). *Textile Research J. 26:* 597-606 (August, 1956).

The effect of dilute sodium hydroxide solution on the properties of cyanoethylated cotton (breaking strength, elongation, knot strength, twist, change in dyeing characteristics, and rot- and heat-resistance) and on cleavage has been studied at 22°, 60°, and 97°C. Graphs. Tables. 21 references.

Fluorescent agents in optical bleaching.

C. Delecluse. *Teintex 21, No. 4:* 271-281; *No. 5:* 363-375 (1956); *in French.* Through *BCIRA 36:* 417 (1956).

In this review, the author discusses the chemical constitution of various optical bleaching agents and the problems involved in their application (method of application and the possibility of combining it with other treatments, the effects obtained, fastness properties, and the means for measuring the whiteness effect of an optical bleaching agent).

Recent developments in brightening agents.

H. W. Zussman, W. Lennon and W. Tobin (Geigy Industrial Chemicals). *Soap Chem. Specialties 32:* 35-39, 81 (August, 1956).

This review covers types of brighteners available and their application, bleach stability, and evaluation.

Notes on development of continuous peroxide bleaching.

Textile Mfr. 82: 418-421 (August, 1956).

The history of the development of continuous bleaching is presented together with a brief description of the three main U. S. systems, du Pont, Becco, and Mathieson. 7 references.

Continuous open-width installations for sodium chlorite bleaching.

R. B. Vogel. *Melliand Textilber. 37, No. 5:* 598-600 (1956); *in German.* Through *BCIRA 36:* 417 (1956).

The latest model of the Gerber full-width bleaching machine, adapted to the new bleaching process with sodium chlorite, is described and illustrated. The machine consists of an impregnating vat, a steamer, a thermo-developing chamber, and an open-width washing machine. The process, for which patent application was made, is called in German the Thermoverweil process, because the treated fabric stays, before washing, for 4-6 hours in the thermo-developing chamber while the bleaching takes place.

Faults in the bleaching of piecegoods.

Textile Recorder 74: 56-58 (September, 1956).

Sources of and remedies for faults in bleaching and scouring are outlined. 6 references.

The use of the high vacuum vaporization for the metallization of textiles.

E. Elod and H. Jorder. *Melliand Textilber. 37, No. 4:* 422-428 (1956); *in German.* Through *BCIRA 36:* 422 (1956).

Various processes for metal-coating of fabrics are reviewed and a plant (built by W. C. Heraeus, Hanau) is described, in which a high-vacuum vaporization process is used for the continuous metallization of textiles. The material is drawn off by a roller within a horizontal cylindrical vacuum boiler of suitable dimensions, conveyed under tension over the metal-spraying installation, and wound on to another roller. The metal is uniformly deposited as an extremely thin layer and does not impair the handle and porosity of the material.

Wash and wear finishes on cotton fabrics.

DuPont Tech. Bull. 12: 78-80 (June, 1956).

Preparation of Zeset S or Panalon CR resin finish for an 80 x 80 print cloth.

Studies on resin finishes (rayon fabric) by high-frequency heating condensation.

M. Suzuki, T. Hasegawa, S. Ikeda, and S. Okajima. *J. Inst. Elect. Engrs. Japan 74, No. 6:* 715-718 (1954); *in Japanese.* Through *BCIRA 36:* 421 (1956).

Resin finishes improve the creasing and shrinking properties of rayon fabrics but reduce their friction-resisting properties. This is attributed to the hot-air heating process employed, which is suspected to cause the resin to stick to the surface of the fabric. Tests with radio-frequency heating as an alternative showed the following improvements: (1) only about half the quantity of resin was used; (2) the crease-resisting properties were unaffected; (3) the operating temperature throughout the fabric was lower; (4) the crease-resisting property was unaffected by mangling; (5) the fabric feels soft; and (6) the heating time is reduced from 22.5 to 4 minutes.

A copper process for prolonged microbiological protection of cellulosic fabrics by chemical modification.

E. Abrams and R. R. Bottoms (National Cylinder Gas Co.). *Textile Research J. 26:* 630-640 (August, 1956).

A new process for prolonged mildew resistance of cellulosic materials consists of treating cellulose with a dilute solution of copper formate followed by a heat treatment. Cotton fabric treated by this process is resistant to pure cultures of cellulolytic organisms both before and after exposure in the Weather-O-Meter, and it survives for relatively long periods in biologically active soil. It is believed that the copper is bound to the cellulose and gives the effect of cross-linking. 3 references.

A rotproof military sandbag.

J. M. Ashcroft and V. J. Bagdon. *Am. Dyestuff Reptr. 45:* 541-542, 579 (August 13, 1956).

The article discusses the requirements of military sand bags, and the research being done to find a rotproof bag competitive in price and availability with jute.

DYEING AND PRINTING D 2

Current developments in the application of dyestuffs.

L. S. Thompson (General Dyestuff Co.). *Am. Dyestuff Reptr. 45:* P544-P547 (August 13, 1956).

Notes on current trends in the dyeing of cellulosic fibers, wool, Vicara, nylon, Dacron, Orlon, Dynel, Acrilan, and Arnel, as well as various blends.

Dyeing blends of Acrilan acrylic fiber and wool.

DuPont Tech. Bull. 12: 57-62 (June, 1956).

The cation transfer system and the use of cationic and neutral-dyeing types of dyes are described.

The dyeing of fiber blends other than those containing wool.

L. Biggins (Imperial Chemical Industries Ltd). *Can. Textile J. 73:* 77-82 (August 24, 1956).

Brief review of dyeing methods for blends of viscose/cotton, viscose/acetate, viscose/nylon, nylon/acetate, and nylon/silk.

New findings and experiences during dyeing of blends from man-made fibers at temperatures above 100° C.

A. Würz. *Melliand Textilber. 37, No. 5:* 566-571 (1956); *in German.* Through *BCIRA 36:* 418 (1956).

In this review, the author discusses dyeing of polyester (polyglycolterephthalate, and cellulose triacetate), polyamide, and polyacrylonitrile fibers at temperatures above 100°C. Especially for the polyglycolterephthalate fibers, high-temperature dyeing is a very promising method. 15 references.

Dyeing synthetic fibers.

H. E. Schroeder (E. I. du Pont de Nemours and Co.). *Chem. Eng. News 34:* 4358-4361 (September 10, 1956).

Both Dacron polyester fiber and Orlon acrylic fiber started as new, undyeable fibers. Through a definite characterization of the polymers, and the fundamental interaction of dyes with the polymer, du Pont was able to choose an approach which led to the application of organic chemistry to the discovery and selection of suitable dyes.

Application methods for improved levelness of dyes on nylon.

J. A. Brooks. *DuPont Tech. Bull. 12:* 91-98 (June, 1956).

A review of the most satisfactory processes for improving dye levelness on nylon fabrics, particularly filament types.

Dyeing of nylon with logwood extract.

E. Scheller & Co., AG. *Textil-Rundschau 11, No. 5:* 282-284 (1956); *in German.* Through *BCIRA 36:* 418 (1956).

Directions are given for dyeing nylon staple fibers, yarn, knitted goods, piece goods, nylon yarn in package form, and mixtures of wool and nylon with a hot solution of unoxidized crystalline logwood extract. The dyed product is rinsed in cold water and treated with a dichromate solution acidified with acetic acid. The black dyeings exhibit excellent fastness properties. The logwood and dichromate baths can be used repeatedly by adding more logwood crystals and acidified dichromate solution, respectively. There is no satisfactory method known, however, for stripping the logwood dyeings without weakening the nylon fiber.

Dyeing of Dacron polyester fiber using carriers.

H. P. Landerl. *DuPont Tech. Bull. 12:* 81-90 (June, 1956).

A resume of the dyeing of Dacron polyester fiber with a carrier present in the bath. Specific carrier recommendations are made relative to experience and type of fabric being processed. 7 references.

Disperse dyes on hydrophobic fibers.

C. L. Bird. *J. Soc. Dyers Colourists 72:* 343-351 (July, 1956).

An attempt is made to explain the present theory of disperse dyeing for the use of technical dyers. The more mathematical part has been put in an appendix. 3 references.

Spectrophotometric studies on metal-dye complexes. Part 1. The reaction between Solochrome Violet RS (2-hydroxy-5-sulfophenylazo-β-naphthol) and tervalent chromium.

R. B. Bentley and J. P. Elder. *J. Soc. Dyers Colourists 72:* 332-342 (July, 1956).

An investigation has been made by spectrophotometric and chromatographic methods of the reaction between an *oo'*-dihydroxyazo dye and tervalent chromium salts. The two complexes formed have been separated chromatographically and their spectra measured. Equilibrium constants for the interconversion of the two complexes have been determined, together with the heat, free energy, and entropy changes for this reaction. Graphs. Tables. 26 references.

Measurement of the redox potential of vat dyes and its practical application.

S. Hafenrichter. *Textil-Rundschau 11, No. 5:* 255-263 (1956); *in German.* Through *BCIRA 36:* 417 (1956).

This is a review of literature dealing with the occurrence of reduction and oxidation processes in textile processing and the measurement of redox potentials. A table is given listing the leuco potentials of Indanthrene dyes and reference is made to dyeing processes in which redox control is of particular importance.

Influence of temperature and humidity on fading.

P. W. Cunliffe. *J. Soc. Dyers Colourists 72:* 330-332 (July, 1956).

Results are presented of experiments carried out in 1931 on the influence of temperature and humidity on the degree of fading of eighteen dyes on wool cloth. 3 references.

New fastness ratings for sulfur dyes on cotton.

DuPont Tech. Bull. 12: 63-73 (June, 1956).

New fastness ratings for Diagen colors printed on cotton muslin.

DuPont Tech. Bull. 12: 74-77 (June, 1956).

Raster technique in screen printing.

A. Franken and W. Keller. *Melliand Textilber. 37, No. 5:* 603-606 (1956); *in German.* Through *BCIRA 36:* 420 (1956).

The preparation of raster patterns on negatives and their reproduction by photomechanical means are discussed, referring to a publication on raster photography by E. Rupp and to the authors' own experiments. Conditions for the printing of fabrics by this technique are briefly enumerated.

MECHANICAL PROCESSES D 3

New drying and conditioning machine.

Western Engineers (Leicester) Ltd. *Textile Wkly. 56:* 244 (July 27, 1956).

Drying and conditioning take place simultaneously in the Airflow unit, eliminating the normal 24-hour conditioning time. 250 lb. of hosiery are processed in a single bath, and hourly output varies between 400 and 800 lb., according to the class of goods.

Flock finishing.

M. C. Dutt. *Indian Textile J. 66:* 550-552, 559 (June, 1956).

The types of flock available, adhesives, and methods of application are reviewed.

How is the raising action on the raising machine produced?

H. Müller. *Melliand Textilber. 37, No. 5:* 583-585 (1956); *in German.* Through *BCIRA 36:* 422 (1956).

Equations and diagrams are given for calculating the number of revolutions of the raising rollers (pile and counter-pile) per minute and the relative velocity of the raising rollers in m/min., with reference to the effective raising action of the pile and counter-pile rollers in dependence of the cloth speed.

Continuous cloth singeing.

E. Turner and Co. (Salford) Ltd. *Textile Wkly. 56:* 399-400 (August 10, 1956).

The high efficiency of the Parex surface combustion singeing-machine is achieved by a unique method of forming the cloth into pockets inside which controlled combustion of the hairs and lints takes place.

TESTING AND MEASUREMENT E

Electron microscope: a new tool for textile research.

I. V. de Gruy (Southern Regional Research Laboratory). *Textile World 106:* 104, 294-296, 298 (September, 1956).

FIBERS E 1

The theory of fiber extraction. Chapter 4. Properties and testing of fibers.

J. G. Thieme. *Textile Quart. 6, No. 2:* 94-100 (1956).

The statistical aspects of fiber testing are discussed, and methods of testing for fiber length and fineness are presented. Photographs.

A simple method for the measurement of the thickness of very thin fibers and threads.

W. Voigt. *Optik 11, No. 11:* 509-510 (1954); *in German.* Through *BCIRA 36:* 423 (1956).

A microscope attachment is described which allows the diameter of a fiber to be calculated. The fiber is in contact with another fiber or foil, whose movement is determined as the test piece is rotated. Examples of the method are given.

Definition and measurement of crimp of textile fibers.

E. Alexander, M. Lewin, H. V. Muhsam, and M. Shiloh (Inst. for Fibers and Forest Products Research, Israel). *Textile Research J. 26:* 606-617 (August, 1956).

Two fundamental concepts are defined, the effective crimp diameter and the effective wave number. The corresponding figures for these concepts are calculated from the measurements of the width values of the plane projection of a rotating fiber and from the measurements of the crimp ratio. These figures are obtained for a fiber under a certain load, and take into account the spatial nature and the statistical aspect of crimp. An effective curvature is determined as well. Results are obtained for 90s Merino and 52s Scotch-Blackface wool fibers. It is shown that the higher quality wool fibers are associated with lower effective crimp diameters and higher effective wave numbers. Diagrams. Graphs. Tables. 18 references.

Blends of man-made fibers.

W. A. Richardson (Brit. Cotton Ind. Research Assoc.). *Textile Mfr. 82:* 427-429 (August, 1956).

Data on tolerance limits in blending yarns to prevent stripes and bars in fabrics are presented, and methods of identifying fibers in blends are reviewed.

Determination of cellulose fiber content in wool blends.

K. S. Hansen and T. Sorensen. *Tidsskr. Textiltek. 14, No. 5:* 69-71 (1956); *in Danish.* Through *BCIRA 36:* 426 (1956).

Comparison is made between three methods for determining the wool content in wool/cellulose blends. The methods, based on two principles (weighing of the cellulose content after removal of the wool with sodium or potassium hydroxide solution, or weighing of the wool after removal of the cellulose material by carbonization with aluminium chloride or sulfuric acid), have certain limitations and can be used only by applying the following correction factors: for the cellulose content in cotton/wool blends 1.03 and in regenerated cellulose blends 1.04, and for the wool content in cotton blends 0.99 and, in blends containing bright and delustered viscose, 1.02 and 0.01, respectively. The sodium hydroxide method can be used for blends with up to 40% cellulose, the other methods for higher cellulose contents (up to 100%).

The determination of cotton in mixtures with viscose rayon by means of sulfuric acid.

E. Druce (Shirley Inst.). *J. Textile Inst. 47:* T430-T438 (August, 1956); *Shirley Inst. Mem. 29, No. 7:* 57-65 (1956).

A modification of the Howlett, Morley and Urquhart method gives good results with laboratory-prepared mixtures and spun blends of cotton and viscose rayon.

YARNS E 2

The determination of neppiness in carded webs.

N. H. Chamberlain and G. Jordan (Leeds Univ.). *Textile Research J. 26:* 579-596 (August, 1956).

The general problems encountered in determining the number and average size of a population of opaque particles randomly distributed on a transparent or translucent ground are discussed, with particular reference to the use of optical scanning methods for such determinations. An apparatus suitable for scanning specimens of carded webs, with a view to determining their nep content, is described, and it is shown that, when used with ideal samples consisting of small black paper disks randomly distributed between glass plates, it is capable of counting and sizing the particle array within very close limits. The particular difficulties encountered with carded web samples are then discussed with reference to actual experimental results, and a method of computing the neppiness index is described. It is suggested that this index may be a more reliable and consistent measure of the neppiness of a sample of carded web than the nep count which has hitherto been used for this purpose. Diagrams. Graphs. Tables. 15 references.

The theories used to express the irregularity of textile yarns.

A. M. V. Abeele. *Ann. Sci. Textiles Belges No. 1:* 91-113 (1956); *in French.* Through *BCIRA 36:* 427 (1956).

In this review, reference is made to the general theories and analyses of yarn irregularity, and the mathematical model, on which the variance-length analysis is based, is explained.

Determination of elongation properties, tensile strength, and slip and stick resistances on the continuously moving sample.

H. Stein. *Melliand Textilber. 37, No. 4:* 467-473 (1956); *in German.* Through *BCIRA 36:* 427 (1956).

Winding testers (Frenzel-Hahn yarn tester, Dynagraph) are reviewed and their application in the determination of elongation properties of filaments and yarns and of slip and stick resistances of rovings is discussed. 16 references.

The rapid determination of yarn counts from diameters.

Textile Quart. 6, No. 2: 92-93 (1956).

A system based on the estimate of the number of yarn diameters which will lie side by side and in contact over ¼ in., when wrapped round an ordinary measuring rule, is described. A table converting the number of diameters to ¼ in. to the lea number is given.

FABRICS E 3

An apparatus for determining biaxial strength properties of cloth and supporting test data.

W. C. Boteler. Wright-Patterson Air Force Base, Ohio, Wright Air Development Center, 1956. 35 p. WADC technical report 55-485.

The Georgia Tech biaxial fabric tension testing machine was modified to permit the simultaneous recording of warp and filling load-elongation curves. Tests indicated that the testing speed has no apparent effect on the elastic properties. A comparison of elongation measurements by extensometer and jaw separation indicates that jaw separation measurements are satisfactory for light loads, but the difficulty of securely clamping the sample introduces serious discrepancies at high loads. The measurement of elongation at various locations in the sample shows a slight increase in elongation as the extensometer is moved towards the clamping jaws.

Wash and wear fabrics.

E. W. Lawrence and R. H. Phillips (Cranston Print Works Co.). *Am. Dyestuff Reptr. 45:* P548-P550, P561 (August 13, 1956).

The wash and wear properties of fabrics and the methods for their evaluation are discussed. A subjective method of evaluation is shown to have good correlation with crease recovery values. For maximum wash and wear characteristics, fabrics should have 240° crease recovery, as measured by the Monsanto Tester, after 5 home launderings. Crease recovery alone cannot be relied upon to give adequate indications of wash and wear, and fabrics should be checked by a washing procedure.

A fabric designed for rapid preparation of uniform raveled test specimens.

S. Shapiro (U. S. Engineer Research and Development Laboratories). *(Letter to the editor). Textile Research J. 26:* 620-621 (August, 1956).

Fabric specification for a standard fabric for determining the microbiological degradation of fabrics that have been impregnated with various types of fungitoxicants.

Underground decomposition of cellulosic textiles.

W. T. King. *Chemistry & Industry No. 29:* 766-767 (July 28, 1956).

A test is described for evaluating the decomposition, by soil bacteria, of the cellulose textile components of the protective coverings of underground power cables, over the entire temperature range attainable by the metal sheath of such cables.

Methods for testing nylon stockings.

Textile Mfr. 82: 404-408 (August, 1956).

Details of the British Nylon Spinners Ltd. procedure for measurement of flat dimensions, counting courses per inch, measurement of width extensibilities, foot length extensibility, dimensional stability to boiling water, fit checks, performance standards, and reporting of results. Photographs. Diagrams.

Quality control in piece-goods knitting.

J. Rab. *Hosiery Trade J. 63:* 82-84 (August, 1956).

Methods and instruments for measuring moisture regain and yarn length per knitted course are briefly discussed. Photographs.

OTHER E 4

The determination of traces of manganese in textiles by means of formaldoxime.

A. G. Hamlin (Shirley Institute). *J. Textile Inst. 47:* T445-T452 (August, 1956); *Shirley Inst. Mem. 29:* 67-74 (May, 1956).

The method described is not as simple as those based upon oxidation of the manganese to permanganic acid, but is equally widely applicable and is about five times more sensitive. 7 references.

Quantitative determination of the resin content of creaseproofed fabrics and the behavior of these fabrics to various treatments, expressed graphically. Part 1. The quantitative determination of creaseproofed fabrics.

G. Monte. *Melliand Textilber. 37, No. 5:* 586-588 (1956); *in German.* Summary in *BCIRA 36:* 421 (1956).

Experiments for the standardization of testing methods for textile assistants. Part 10. Determination of the azo pigment dispersing ability of surface active agents.

G. Schwen and C. Rackmann. *Melliand Textilber. 37, No. 4:* 456-457 (1956); *in German.* Summary in *BCIRA 36:* 419 (1956).

INDUSTRIAL ENGINEERING F

Handbook of industrial engineering and management.

W. G. Ireson and E. L. Grant. Prentice-Hall, Inc., Englewood Cliffs, N. J., 1955. 1203 p. $12.00.

A complete treatise covering management, industrial relations, time and motion study, systems and procedures, industrial standardization, tool engineering, statistics, inspection and quality control, and operations research.

Cost and production study.

Saco-Lowell Bull. 28: 31-35 (July, 1956).

Comparison of mill costs of a complete Gwaltney spinning room, a spinning room with complete Duo-Roth equipment, and a spinning room combining Gwaltney frames for warp and Duo-Roth frames for filling, in a spinning and weaving mill for the production of a 46 in., 80 x 80, 3.39-yard print cloth of superior quality, having 1200 looms, and producing 4346 yards per hour.

The theory and technique of cost accounting in the hosiery industry.

A. W. Patrick. University of Michigan, School of Business Administration, Ann Arbor, Michigan, 1956. 229 p.

The purpose of this study is to present the theory underlying standard cost accounting and to suggest techniques for using standard costs in the hosiery industry. The material falls into three parts: (1) the history of the knitting industry and the economics of the hosiery industry; (2) the theory of standard costs; and (3) techniques and methods for employing standard costs in a hosiery manufacturing company.

MACHINERY AND MAINTENANCE F 1

Maintenance in the textile mill. Part 1. Opening and picking. Part 2. The card room. Part 3. Drawing and roving. Part 4. Spinning, spooling, and warping. Part 5. Slashing and weaving.

J. L. Delany (Joanna Cotton Mills Co.). *Textile Age 20:* 69-72 (March, 1956); 35 (April, 1956); 50 (May, 1956); 54 (July, 1956); 60 (August, 1956).

Precision lubrication.

Hosiery Equipment Ltd. *Textile Wkly. 56:* 532-533 (August 24, 1956).

The modified electromatic lubricator has 16 feed pipes, each pipe able to vary its feed of oil between 1 and 50 droplets. The amount of oil discharged is determined by the needs of the machine to be lubricated and does not in any way fluctuate with the performance of the machine. The units will lubricate a machine for between 100 and 150 working hours without refilling.

Control of corrosion in mill air conditioning equipment.

J. S. Livingstone (Livingstone Coating Corp.). *Knitter 20:* 38-41 (August, 1956).

Causes of and control methods for corrosion.

An introduction to equipment analysis.

G. Terborgh. Wash., Machinery and Allied Products Institute, 1956. 21 p.

The economics of equipment replacement are discussed, and the use of the MAPI formula as a guide to new project investment and for the comparison of new project and replacement proposals is explained.

WASTE DISPOSAL F 2

Biological treatment of highly-alkaline textile mill waste-sewage mixture.

Proc. Am. Soc. Civil Engrs. 81, No. 750: 1-4 (September, 1955). Through *Water Pollution Abstr. 29:* 105 (March, 1956).

Pilot-plant studies on the biological treatment of a mixture of textile manufacture waste waters and sewage on percolating filters, without previous neutralization of the high alkalinity, indicate the feasibility of using biological processes for at least the preliminary treatment of waste waters.

Treatment of textile wastes. Part 3. Chlorine: its role in chemical treatment.

Chlorin. Top. 8, No. 3: 4-5 (1954); *Public Health Eng. Abstr. 35, No. 4:* 19 (1955). Through *Water Pollution Abstr. 29:* 105 (March, 1956).

A description of the waste treatment plant of the Northern Dyeing Corporation at Washington, N. J., is given.

QUALITY CONTROL F 3

Modern quality control. (Moderne Qualitatskontrolle).

A. H. Schaafsma and F. G. Willemze. Eindhoven, Holland, Philips Technische Bibliothek, 1955. 468 p. 28 DM.

Covers the statistical and managerial basis of quality control and quality development.

On the factory floor: an approach to control of yarn characteristics.

W. J. Cox. *Hosiery Times 29:* 14-17, 21 (August, 1956).

A method of keeping control charts on yarn twist and count is described, and information on sampling, calculations for setting control limits, plotting, and reading the charts is included.

Invisible marking of hosiery for quality control.

S. L. Fitton and W. K. Gartrell (British Rayon Research Assoc.). *Hosiery Trade J. 63:* 88-89 (August, 1956).

Recipes for marking nylon and lisle hosiery which are easily applied, fast to processing, invisible on the finished article, and readily seen under suitable conditions.

SCIENCES G

CHEMISTRY G 1

The auto-hydrolysis of acidic oxycelluloses.

G. F. Davidson and T. P. Nevell (Shirley Institute). *J. Textile Inst. 47:* T439-T444 (August, 1956); *Shirley Inst. Mem. 29:* 51-56 (May, 1956).

The oxycelluloses used were prepared by treatment of cotton cellulose first with periodate and then with chlorous acid. The stability of periodate-chlorite oxycelluloses kept in the free-acid form under given conditions of moisture regain and temperature decreases with increasing carboxyl content, and the rate of decomposition of a given oxycellulose increases with increasing temperature at constant regain and with increasing regain at constant temperature. When the carboxyl groups are in the form of sodium salt, the oxycelluloses are virtually stable in the air-dry condition at temperatures up to 30°C. Treatment of the free-acid form of a periodate-chlorite oxycellulose with boiling water results in progressive loss in weight and fall in carboxyl content, and in the formation of soluble acidic products in progressively increasing amount. Viscosimetric comparison of the rates of hydrolysis of hydrocelluloses and periodate-chlorite oxycelluloses by hydrochloric acid provides evidence that some of the linkages in these oxycelluloses are more easily hydrolyzed by acid than the normal glycosidic linkages in cellulose. 5 references.

Carpet soiling.

J. W. S. Hearle. *Skinner's Silk & Rayon Record 30:* 800-815 (August, 1956)

The factors contributing to soiling, methods of measurement, and finishing treatments for control are discussed. Micrographs. Photographs. 10 references.

Polymer processes: chemical technology of plastics, resins, rubbers, adhesives and fibers.

C. E. Schildknecht, ed. N. Y., Interscience Publishers, 1956. 914 p. High polymers, v. 10. $19.50.

This book is devoted to the chemical aspects of polymer technology, especially the newer processes employed for preparation, formulation and shaping of plastics, rubbers, fibers and adhesives, with a view to bridging the gap between theory and practice. Extensive references.

The chemistry of phenolic resins.

R. W. Martin. John Wiley and Sons, Inc., 601 West 26th Street, New York 1, N. Y., 1956. 298 p. $9.50.

Detailed survey of the chemistry of phenolic resins and related products from the viewpoint of the organic chemist. Tables showing structure, melting point, and pertinent references for the more important types of products are included. Extensive bibliographies.

Industrial and manufacturing chemistry. Part 1. Organic.

G. Martin, ed. 7th ed. rev. Philosophical Library, Inc., 15 East 40th Street, New York 16, N. Y., 1955. 752 p. $17.50.

Includes sections on the cellulose industry, dyes, dyeing, fibers, bleaching, waterproofing, etc.

Bibliography of solid adsorbents 1943 to 1953.

V. R. Deitz. U. S. National Bureau of Standards, Wash., 1956. 1528 p. Circular 566. $8.75. Available from Superintendent of Documents, Government Printing Office, Washington 25, D. C. Through *BCIRA 36:* 327 (1956).

This bibliography supplements one covering the period 1900 to 1942. It consists of abstracts mainly from Chemical Abstracts, broadly classified (gases and vapors, solutions, thermal effects, theories, applications, and adsorbents) and including references to cellulose acetate, cellulose chromatography, cotton, mercerized cotton, Dacron, gelatin, nylon, silk, starch, textiles, viscose rayon, water purification, and wool. Most of the fiber references relate to water vapor and dyes. There is a bibliography (listing sources), a list of commercial solid adsorbents (proprietary names), and author and subject indexes.

PATENT CHECKLIST

U. S. Patents may be obtained from the U. S. Patent Office, Washington 25, D. C., for 25 cents per copy. Photostatic copies of foreign patents are available. Charges for these photostats are based on the number of pages in the patent.

FIBERS A

NATURAL FIBERS A 1

Portable decorticator for ramie.

W. J. Godtel. USP 2 755 511, July 24, 1956.

A portable harvesting and decorticating device for ramie or kenaf which may be attached to a tractor.

Decortication.

W. B. Simons (to W. B. Simons Industries, Inc.). USP 2 759 224, August 21, 1956.

Decorticating machine in which the plant stalks are withdrawn in such a way that the fibers at the tip portions of the stems are cleaned as thoroughly as those of the butt portions.

YARN PRODUCTION B

Twistless strands.

B. Lawrence (to Fiberbond Laboratories, Inc.). USP 2 759 520, August 21, 1956.

An apparatus for impregnating a continuous series of overlapping staple length fibers with an adhesive to form a continuous untwisted strand.

Apparatus for crimping continuous filament tow or spun yarn.

E. H. Shattuck (to Alexander Smith, Inc.). USP 2 760 252, August 28, 1956.

OPENING, PICKING, FIBER PREPARATION B 1

Lint cleaner.

E. E. Moss. USP 2 755 512, July 24, 1956.

Lint cleaner for ginned cotton in the form of a bat in which the complementary roll is on a fixed axis and the feed plate resiliently mounted to provide for variations in the thickness of the bat.

Feeding means for fibers.

W. A. Hunter, F. Singleton, and L. Witcombe (to T.M.M. (Research) Ltd). USP 2 759 225, August 21, 1956.

An apparatus for feeding loose, open fibrous material in a condition of uniform density and at a controlled rate to preparatory machines, e.g., calendering or lap-forming rollers.

CARDING AND COMBING B 2

Automatic lap winding apparatus.

R. Kawazura (Japan). USP 2 756 939, July 31, 1956.

Process of automatic lap winding without halting the operation of the picker to eliminate variations in the amount of lap.

Fillet tensioning device.

G. Freno (to Manifattura Italiana di Scardassi). USP 2 756 993, July 31, 1956.

Tensioning device for card fillet manufacturing machines, which ensures the fillet tension without any counterweight, by maintaining between the tensioning roller and the wire setting device a predetermined fillet length.

DRAWING AND ROVING B 3

Speed frame drafting mechanism.

J. Noguera (to Casablancas High Draft Co. Ltd). USP 2 755 514, July 24, 1956.

Improved condenser means for obtaining longer draft in a single continuous operation and for producing a more regular and stronger roving or yarn.

Top roll for drawing frames.

L. M. Cotchett and K. P. Swanson. USP 2 755 515, July 24, 1956.

A compact and comparatively inexpensive antifriction shell type top roll from whose bearings lint and fly are excluded by means of a felt washer.

Spinning cot.

W. S. Adams and W. Brewer (to Sonoco Products Co.). USP 2 755 516, July 24, 1956.

A cork spinning cot formed with a seamless, flexible liner which is arranged for strengthening the cot body and for facilitating both its manufacture and use.

Automatic electric stop-motion device for roving machinery.

H. Halleux (to Societe Alsacienne de Constructions Mecaniques). USP 2 756 296, July 24, 1956.

Apron-type drafting mechanism.

G. D. Love and D. B. Hopkinson (to Saco-Lowell Shops). USP 2 756 462, July 31, 1956).

Drafting fibers of widely varying lengths and characteristics, as well as mixtures of such fibers, by using a drafting apparatus of the apron type having a fiber control mechanism between a pair of delivery rolls and a pair of back rolls.

Sliver baller.

H. M. Smith and W. Ashcroft (to Warner & Swasey Co.). USP 2 757 876, August 7, 1956.

The formation of a compact ball of sliver of uniform density while imparting a false twist.

Weighting device for top drafting rolls.

G. C. Anderson (Saco-Lowell Shops). USP 2 758 340, August 14, 1956.

Top roll weighting and supporting arrangement in which uniform weighting is applied to the supporting cage rather than directly to the top roll.

Self-threading reducing collectors for drafting mechanisms.

J. Noguera (to Casablancas High Draft Co. Ltd). USP 2 758 341, August 14, 1956.

Drafting roll weight measuring device.

G. W. Tew (to Deering Milliken Research Corp.). USP 2 759 358, August 21, 1956.

Roll weight measuring device which may be installed without removing any rolls or adjacent parts of the spinning frame, roving frame, etc., other than the usual top roll clearer mechanisms, and may be transferred without removing any fastenings.

Vacuum draft control system.

A. A. Spisak and R. O. Perrault (to Warner & Swasey Co.). USP 2 760 237, August 28, 1956.

Suction draft control unit for obtaining a high degree of reduction in each drafting stage and producing very fine yarns, with relatively few drafting stages, with a high degree of uniformity of weight and thickness.

SPINNING, WINDING, TWISTING B 4

Means for minimizing the stress imposed on spindle bearings by out-of-balance loads and for providing a wide range between critical speeds.

D. R. Clark (to T. M. M. (Research) Ltd). BP 739 007, October 26, 1955. Through *BCIRA 36:* 383 (1956).

Spring means for locating a boss on its arbor in a top drafting roller system of the detachable type.

J. Noguera (to Casablancas High Draft Co. Ltd). BP 739 102, October 26, 1955. Through *BCIRA 36:* 384 (1956).

Mountings for spinning and twisting spindles.

SKF Kugellagerfabriken GmbH. BP 739 423, October 26, 1955. Through *BCIRA 36:* 384 (1956).

Bobbin drive.

E. R. Jones and T. A. Newell (to E. I. du Pont de Nemours & Co.). USP 2 755 027, July 17, 1956.

Bobbin driving means free of bushings and drive slots in the bobbin tubes themselves, for textile machines where bobbins are rotated by drive spindles which operate at relatively high speeds.

Twisting head drive.

F. Hadwich (to Schiess AG). USP 2 755 615, July 24, 1956.

The drive of the rollers and roller housing of the twisting head is effected from a common driving means and a differential gear so that when altering either the twist of the roving or the delivery speed, the other quantity is kept at the set value.

Removing a thread end from a spool.

S. Fürst (to Walter Reiners). USP 2 755 857, July 24, 1956.

An apparatus for locating a thread end, automatically unwinding it, or tearing or cutting it from the spool.

Bobbin.

N. E. Klein (to Deering Milliken Research Corp.). USP 2 756 006, July 24, 1956.

A bobbin, especially adapted for use with high speed twisters, with a handle which will not interfere with the flow or travel of the yarn through the center of the bobbin.

Bolsters for spinning frames.

L. M. Cotchett. USP 2 756 117, July 24, 1956.

Prevention of adverse oil counterflow caused by vibration, and resulting frothing, by use of a bolster which does not have to be oriented at any definite angle to the pull of the tape.

Plastic traveler and ring.

W. M. Camp and G. R. Eckhardt (to Coats & Clark Inc.) USP 2 756 558, July 31, 1956.

A ring and a plastic traveler shaped to prevent the traveler from being pulled or removed from the ring during operation.

Skein winding reel.

M. B. Penman (to Magee Carpet Co.). USP 2 756 938, July 31, 1956.

Winding reel with expansible and contractable paddles to facilitate the removal of the skeins and means for automatically locking the yarn spools on their spindles during winding.

Spooler.

B. Marcellus. USP 2 757 874, August 7, 1956.

Spooler for winding large size cheeses, with sufficient yarn for filling several warp beams, from bobbins larger in size than conventional bobbins.

Spool clamping device.

W. Gollos, E. Hedtmann, and W. Kotte (to Vereinigte Glanzstoff-Fabriken AG). USP 2 757 875, August 7, 1956.

Clamping device which permits a convenient and rapid exchange of a full spool by an empty one without touching the uppermost layer of the textile material on the full spool.

Yarn mandrel.

E. Sinnett (to L-O-F Glass Fibers Co.). USP 2 757 877, August 7, 1956.

An easily removable mandrel permitting tight winding on split tubes.

Bobbin marker.

J. B. Walker. USP 2 758 436, August 14, 1956.

Bobbin marker which is mounted detachably on a doffing box so that as the doffer pushes the box in front of him along the spinning frame the marker will mark each filled bobbin with a proper colored mark.

Twisting spindle.

M. Lattion (to Pag Patentgesellschaft AG). USP 2 758 437, August 14, 1956.

Twisting device having a vertical spindle, with a bore from end to end, so held that it can align itself to its ideal axis of rotation.

Balloon control.

A. Nau-Touron (to Isaac Frenkel). USP 2 758 438, August 14, 1956.

Rotary device for reducing the balloon in spinning, twisting, doubling, or throwing by guiding the thread towards the end of the spindle while allowing it to make a rotational angular movement in relation to the spindle to permit winding.

Sucking up thread ends of cross-wound bobbins.

S. Fürst (to Walter Reiners). USP 2 758 799, August 14, 1956.

Suction device for thread ends from the peripheral surface of conical or tapered bobbins during winding on automatic quick-traverse and cross-winding frames.

Spindle support.

H. S. Broyles (to Celanese Corp. of America). USP 2 758 895, August 14, 1956.

Spindle support which is easily assembled and disassembled, minimizes the effects of vibration, and reduces the contamination of textile materials due to lubricants or rust.

Lubrication of traveler guiding rings.

G. F. Albrecht. USP 2 760 329, August 28, 1956.

A removable conduit attached to the rail of a spinning frame is supplied with oil at one end and has along it a feeder tube and wick for each ring assembly.

YARNS B 5

Glass fiber cordage.

G. Slayter (to Owens-Corning Fiberglas Corp.). USP 2 753 677, July 10, 1956.

Method and apparatus for producing cordage and twine of glass fibers in a single operation without the need of a series of consecutive twisting and plying operations.

Yarn drawing device for multiple-ply yarns which are stretched before being wound on coils.

W. Lenk (to Barmer Maschinenfabrik AG). USP 2 757 433, August 7, 1956.

FABRIC PRODUCTION C

WARPING, SLASHING, YARN PREPARATION C 1

Conditioning yarn packages by conveying them past a spraying device.

Schweizerische Lokomotiv und Maschinen Fabrik. BP 739 130, October 26, 1955. Through *BCIRA 36:* 384 (1956).

Bobbin support (creel).

H. P. Staufert. BP 739 138, October 26, 1955. Through *BCIRA 36:* 386 (1956).

Warp tension device.

E. K. Bauer (to American Viscose Corp.). USP 2 756 481, July 31, 1956.

Clamping and tensioning a warp of yarn to facilitate taping its ends before doffing a full beam.

Drop wires for warping machine stop motions.

F. H. Kaufmann (to Steel Heddle Mfg. Co.). USP 2 756 482, July 31, 1956.

Drop wires with wear-resistant eye pieces which may be readily inserted and replaced.

Untwisted, sized rayon threads.

H. Elling (to American Enka Corp.). USP 2 757 101, July 31, 1956.

Producing sized, untwisted, cylindrical rayon yarn by squeezing to remove the size, and then reconverting the flattened yarn into a cylindrical shape by means of a grooved roller.

Warp tension device.

T. E. Carlson (to Industrial Rayon Corp.). USP 2 758 802, August 14, 1956.

Tension control and equalizing device for yarn being withdrawn from creels in association with beam warpers.

WEAVING C 2

Rotary mercury electrical switch for a circular loom drive.

J. S. Plenderleath (to Jute Industries Ltd). BP 739 048, October 26, 1955. Through *BCIRA 36:* 386 (1956).

Yarn transfer combs for yarn spools for carpet looms.

K. G. Templeton (to James Templeton & Co. Ltd). BP 739 062, October 26, 1955. Through *BCIRA 36:* 386 (1956).

Loom device for removing thread present between edge of fabric and the weft bobbin when changing the bobbin.

Soc. anon. Adolphe Saurer. BP 739 344, October 26, 1955. Through *BCIRA 36:* 386 (1956).

Loom let-offs.

J. O. Hunt. USP 2 755 822, 823, 824, July 24, 1956.

Warp let-off which maintains the warp yarns under the desired tension at all times and particularly at the time of the beat-up, but quickly releases the tension on the yarns in the event of the abrupt stoppage of the loom resulting from the shuttle not completing its flight and being trapped in the shed.

Shuttle binder supports.

C. Van Deventer, III (to National Plastics, Inc.). USP 2 755 825, July 24, 1956.

Lubrication of the shuttle binder support by incorporating in a porous metal shim and bushing a lubricant to provide for self-lubrication of the bearing and complete heat dissipation without danger of contamination of the thread by the lubricant.

Eliminating set marks.

J. D. Griffin (to Deering Milliken Research Corp.). USP 2 756 781, July 31, 1956.

An attachment for gripping or snubbing the cloth close to the fell for the full width of the loom which does not interfere with the weaving operation and tends to prevent the occurrence of a set-mark in the fabric when the loom is started up after it has been stopped.

Loom stop motion.

R. B. Applegate and W. R. Durrett (to Westinghouse Electric Corp.). USP 2 756 782, July 31, 1956.

Stopping a loom when the shuttle is delayed or unduly accelerated in its flight by use of a radioactive material in the shuttle or yarn carrier, and a radioactivity detector adjacent to the path of the carrier.

Shuttleless ribbon looms.

F. Coppa (Italy). USP 2 757 692, August 7, 1956.

Shuttleless ribbon loom with stationary feed of the weft and with arrangement for the formation of an identical selvage at the ends of the cloth.

Yarn package.

W. Barraclough and J. Butterfield (England). USP 2 757 885, August 7, 1956.

Yarn package for a weaving shuttle incorporating a parallel tube, enabling a cross-wound cheese of yarn to be inserted in a shuttle.

Wire loom weaving of pattern pile fabrics.

P. J. Schmitz. USP 2 758 613, August 14, 1956.

Pile wire loom weaving in which the selective shedding of the pile produces desired variations of cut and loop pile in either height or location on the face of the fabric.

Shuttleless loom for narrow fabric.

D. Silberman, R. Dallaquila, and G. E. Ulrich (to Tapes, Inc.). USP 2 758 614, August 14, 1956.

This shuttleless ribbon loom, in which the filler guide, packing comb, locking needle, and thread control means supplying the locking needles are all operated by a single camshaft, may be threaded from large spools and operated for long periods without the attention of an operator.

Dobby loom.

E. Honegger (to Eidg. Techn. Hochschule). USP 2 759 494, August 21, 1956.

A loom having an adjusting gear between the loom drive and the shedding mechanism, so that the timing of the shedding motion relative to the beat-up motion may be continuously changed.

Gripper shuttle.

E. Pfarrwaller (to Sulzer Freres). USP 2 759 496, August 21, 1956.

Gripper shuttle having a thread clamp which is actuated by elements effecting opening of the clamp for seizing and/or releasing a weft thread.

Reducing loom stops.

P. F. Pelletier (to Bates Mfg. Co.). USP 2 759 497, August 21, 1956.

Device for reducing the number of loom stops caused by the breaking of the filling in a filling-change type loom, e.g., a Draper or a Northrop loom.

Loom sheaves.

C. Van Deventer, III (to National Plastics, Inc.). USP 2 760 378, August 28, 1956.

Sheaves of plastic material are provided with bushings for mounting on a cross shaft, and are held spaced apart by thrust washers, interposed between the bushings and sheaves, which project radially outward to act as heat dissipating louvers.

Carpet loom pile yarn attachment.

H. P. Sontag, H. F. Salomon, and G. E. Hernstadt (to Firth Carpet Co., Inc.). USP 2 760 520, August 28, 1956.

Pile yarn feed tubes attachable to a power loom so that it will weave the backing material simultaneously in coordination with the hooking operation.

Propelling shuttles across the lay.

W. T. Sullivan. USP 2 760 521, August 28, 1956.

Electrical means for simultaneously propelling a pair of shuttles from one double shuttle box to the other.

Pick motion.

T. S. Higgins (to Draper Corp.). USP 2 760 522, August 28, 1956.

Picking means using cams of relatively easy contour rotated at a high speed, so that the surface speed of the cam past its follower is much higher than now used, and the shock and noise incidental to picking is reduced.

Pick shaft stop.

C. C. Rogers. USP 2 760 523, August 28, 1956.

A cushioning shock absorber stopping device for bringing the pick shaft and the picker stick to a stop with a minimum of shock or vibration, eliminating the necessity for providing leathers.

Picking motion.

E. Müller (Switzerland). USP 2 760 524, August 28, 1956.

Means for imparting an additional angular velocity to the picking tappet at the moment of the pick without any change in the speed of the drive shaft or in the diameter of the picking cam or tappet.

Picker stick check.

C. Darwin (to Crompton and Knowles Loom Works). USP 2 760 525, August 28, 1956.

A means for arresting excess upward motion of a picker stick, equipped with a rocker foot, after it has completed its picking stroke.

Picker bumper strap.

G. K. Hussey (to Graton and Knight Co.). USP 2 760 526, August 28, 1956.

A preformed, leather bumper strap, shaped for readily sliding upon the picker rod without undue force, and treated to protect the leather against humidity, oils, and greases.

Loom thread cutter.

J. W. Kovaleski (to Crompton and Knowles Loom Works). USP 2 760 527, August 28, 1956.

Thread cutter for weft replenishing looms which operates satisfactorily without requiring very close adjustment of the opening and closing means for the cutting and clamping blades.

KNITTING C 3

Coated flexible fabric.

A. A. Schoenberger (to Industrial Rayon Corp.). USP 2 755 535, July 24, 1956.

Rayon multi-filament highly tear-resistant circular-knit fabric for use as a backing material for plastic coating.

Hosiery.

M. F. Weller (to Patentex, Inc.). USP 2 755 616, July 24, 1956.

Making a longitudinally stretchable zone at or above the knee in ladies' full fashioned or circular knit stockings of nylon by twisting and heat setting the inelastic nylon yarn.

Selecting mechanism of circular knitting machines.

F. E. Deans and C. H. Wainwright (to Bentley Engineering Co. Ltd). USP 2 755 645, July 24, 1956.

Selecting mechanism of circular knitting machines of the opposed needle cylinder type which gives a wide range of selection without the use of a long cylinder and without cutting unduly deep tricks, and permits the use of a pin-drum for controlling the selection.

Narrowing attachment for flat knitting machine.

W. M. Golaski. USP 2 755 646, July 24, 1956.

Mounting and operation of an auxiliary transfer point to eliminate the gores produced by narrowing and widening.

Regular selvages on flat knitting machine.

E. Hafner (to Dubied Machinery Co.). USP 2 755 647, July 24, 1956.

On a flat knitting machine the stroke of the thread-carrier block is changed gradually in proportion to the variable width of the fabric to produce regular selvages.

Open latch detector for circular knitting machines.

E. Vossen (to Stop-Motion Devices Corp.). USP 2 755 648, July 24, 1956.

Automatic means for instantaneously detecting broken yarn by detecting an open latch and stopping the machine.

Cam system for circular knitting machines.

A. Shortland (to Mellor Bromley & Co. Ltd). USP 2 756 574, July 31, 1956.

Dial cam system for cylinder and dial type knitting machines designed to present to the edges of the butts of the dial needles, or of the needle-actuating jacks, a smooth unbroken cam edge or wall and prevent deformation of the needle line.

Pattern jack control.

S. J. Haddad. USP 2 756 575, July 31, 1956.

Increased speed is possible with circular independent needle knitting machines using selector plungers for controlling the pattern jacks to restrain the master butts on the jacks from accidentally engaging subsequent jack actuating or secondary raise cams.

Hosiery machine.

H. E. Crawford (to H. E. Crawford Co., Inc.). USP 2 757 526, August 7, 1956.

Circular knitting machine for Argyle men's hosiery.

Hosiery machine.

R. H. Lawson (to Scott & Williams, Inc.). USP 2 757 527, August 7, 1956.

Sinker construction for fine gauge circular knitting machines providing clearance for the needle latch, thus permitting a tighter fabric to be knit without breakage and stitch distortion.

Refinishing the presser edge of straight knitting machines.

R. C. Braxton (to Alamance Industries, Inc.). USP 2 758 459, August 14, 1956.

Refinishing the presser edge of the sinker head bottom of a full-fashioned knitting machine without removing the sinker head bottom and adjacent parts of the sinker head from the machine.

Circular hosiery machine.

H. S. Burdett (to G. Stibbe & Co. Ltd). USP 2 759 342, August 21, 1956.

Circular seamless hose machine of relatively small diameter which can be readily equipped with 3 instead of the customary 2 feeders.

Knitting machine for pile fabrics.

E. F. Clark and J. R. Little (to B. F. Goodrich Co.). USP 2 759 344, August 21, 1956.

Knitting machine in which face threads are laid in the fabric in weft fashion and in loop form and cut to provide free ended pile.

Take-up mechanism for warp knitting machines.

F. P. Trumpio (to Textile Machine Works). USP 2 760 362, August 28, 1956.

Device for controlling the fabric take-up speed of a warp knitting machine.

Defective needle spotter.

D. T. Van Alen and R. W. Kordatzky (to George W. Borg. Corp.). USP 2 760 363, August 28, 1956.

Electronic device for continuously testing the needles of a circular latch needle machine and stopping the machine whenever the testing operation reveals a defective needle.

FABRICS C 4

Polyamide yarn for pile fabric.

J. J. Repp (to Collins & Aikman Corp.). USP 2 753 614, July 10, 1956.

This heat set pile ply yarn of staple synthetic polyamide fibers, which is given a permanent and resilient set capable of reassuming its set position or stand in the fabric after liquid treatment, provides a pile fabric in which the face has either a "pebble" like appearance or a curled yarn appearance or combination of both.

Puffed fabrics.

D. D. McCord, T. R. Holbrook, C. A. Rudolph, J. F. Nicholl, H. P. Faris, and B. R. Koenig (to Chicopee Mfg. Corp.). USP 2 757 434, 436, and 437, August 7, 1956.

Producing a puffed thermoplastic upholstery fabric by differential heat treatment of a fabric having heat shrinkable shrinkers incorporated on its main body, causing portions to shrink and adjacent ones to rise.

Laminated fabrics.

L. Bihaly (to Trubenised Co.). USP 2 757 435, August 7, 1956.

Interlinings for fused fabric assemblies in which the thermoplastic material is solid at atmospheric temperatures and melts at a temperature below the maximum to which the other constituents of the assembly can safely be subjected, eliminating treatment with plasticizers or solvents.

Double faced pile fabric.

D. P. Moore. USP 2 757 529, August 7, 1956.

Knitted fabrics in which the fiber staple has its free ends disposed approximately equal upon each face of the fabric to produce a double faced fleece or pile. The fiber staples are so combined with the basic yarn that their approximate centers are locked in by each individual stitch, while the free ends during the knitting operation are suction parted.

Fibrous mats.

A. Ceretti (Italy). USP 2 758 048, August 7, 1956.

Stretching fibrous mats of layers of continuous glass filaments to form an elongated band having intercrossed fibers out of a mat having substantially parallel fibers.

Patterned pile fabric.

J. W. Kradoska. USP 2 758 355, August 14, 1956.

Shearing a design on a pile fabric by means of a perforated template.

Chenille fabrics.

C. C. Hunt. USP 2 759 443, August 21, 1956.

Machine for producing a chenille fabric having pile tufts on both sides, and in which the yarn increments on its faces will be looped through at least two holes in the fabric base.

Pile carpets.

C. H. Masland, II (to C. H. Masland & Sons). USP 2 759 495, August 21, 1956.

Weaving a one shot pile carpet by threading-in two sets of pile warp ends in alternate dents and modifying the backing by placing the pile warp end either adjoining to or in spaced relation from that binder warp end which is half raised when the pile warp end is fully raised, thus selectively accenting or hiding the pile warps at the back.

Apparatus for applying a backing such as foam rubber to carpets or other fabrics.

J. Marco. USP 2 759 518, August 21, 1956.

Pile carpets.

S. McKnight and B. W. Peebles (to Mohasco Industries, Inc.). USP 2 760 528, August 28, 1956.

Highly flexible pile carpeting, suitable for covering floors of irregular contour, is made up of interlaced binder warp and filling yarns, the filling yarns being single set and lying wholly in a plane.

FINISHING AND CHEMICAL PROCESSING D

Crimping apparatus.

W. Goodhue (to Alexander Smith, Inc.). USP 2 758 357, August 14, 1956.

Tension device for controlling the rate of withdrawal of filament tow, filament yarn, spun yarn, or a web, after crimping or other treatment.

Crimping apparatus.

E. H. Shattuck (to Alexander Smith, Inc.). USP 2 758 358, August 14, 1956.

Apparatus for crimping continuous filament tow, filament yarn, or spun yarn with means for maintaining a constant setting time and controlling the rate of withdrawal.

Crimping polyethylene terephthalate filaments by heat stretching and heat relaxing.

H. J. Kolb (to E. I. du Pont de Nemours and Co.). USP 2 758 908, August 14, 1956.

CHEMICAL PROCESSES D 1

Dyed flameproof fabric for draperies, theater curtains, etc.

I. Barnett (to Johns-Manville Corp.). USP 2 755 534, July 24, 1956.

A strong, light weight, woven asbestos fabric containing more than 25% cellulosic reinforcing fibers, which is washable, dry cleanable, and durably flameproof, and may be evenly dyed.

Colloidal aqueous dispersion of dextran for sizing and stiffening textiles (for commercial and home laundering).

L. J. Novak, W. S. Hogue, and H. J. Homer (to Commonwealth Engineering Co. of Ohio). USP 2 756 160, July 24, 1956.

Improving the tensile strength of polyacrylonitrile fiber by treatment with ethylene diamine.

H. Kleiner, W. Brenschede, and O. Bayer (to Farbenfabriken Bayer AG). USP 2 758 003, August 7, 1956.

Wet processing textiles.

L. J. Clarke (England). USP 2 758 463, August 14, 1956.

Dyeing, bleaching, or finishing textiles by passing the material in continuous length uni-directionally through long U-shaped cells containing a small volume of treating liquor which is regularly changed and kept in motion throughout the process.

Liquid treatment of synthetic filaments.

H. Eggink, H. Elling, F. Ettinger, K. Ostertag, and K. J. Schulze (to American Enka Corp.). USP 2 758 464, August 14, 1956.

Apparatus for preventing a turbulence in the bath liquid through which a group of filaments passes, thus eliminating undesirable bends in the filaments.

Web tensiometer.

R. L. Bowen, Jr. USP 2 758 472, August 14, 1956.

Device for determining the tension on a web of cloth in a coating machine to permit the manual control of the machine for maintaining uniform tension.

Pot carroting rabbit fibers.

E. Elod (Germany). USP 2 758 907, August 14, 1956.

Pot carroting loose rabbit fibers by immersing prefelted cones of the fibers in an aqueous solution of hydrogen peroxide and nitric acid.

Silicone water-repellent compositions.

D. P. Spalding and G. E. Shepherd (to General Electric Co.). USP 2 758 946, August 14, 1956.

Water-repellent textiles, resistant to launderings or dry cleanings, are obtained by coating with an organopolysiloxane free of silicon-bonded hydrogen and an aminoplast in the incompletely condensed state, e.g., urea-aldehyde and melamine-aldehyde resins.

Twist detection and detwister control.

W. E. Dean. USP 2 759 324, August 21, 1956.

Apparatus for detecting the presence and direction of twist in a traveling rope of textile fabric, and initiating means for eliminating any twist prior to opening the rope and spreading the fabric to its full width.

Light and heat radiation reflecting, fireproof material.

F. Limm (to Far-Ex Corp.). USP 2 759 522, August 21, 1956.

Light and heat radiation reflecting, heat resistant material for fire-fighting and heat protective apparel comprises a flexible, heat resistant fabric, and an adhesive material layer, incorporating aluminum particles, to which is bonded at least one aluminum top foil.

Water-repellent finish.

L. A. Fluck and A. L. Logan (to American Cyanamid Co.). USP 2 759 851, August 21, 1956.

Treatment of fabrics containing hydrophobic, thermoplastic, synthetic textile fibers with a stable aqueous dispersion of a hydrocarbon wax, an amine soap and lower aliphatic monocarboxylic acid salts of aluminum, and zirconium or titanium to produce a wash-durable, water repellent finish.

DYEING AND PRINTING D 2

Photochemical multicolor printing process.

L. E. Ravich (to Brown-Allen Chemicals, Inc.).

USP 2 756 144, July 24, 1956.

This multi-color printing process makes use of the fact that dyes of the diazo type react differently to light radiation than dyes of the leuco ester type. A solution of a photosensitive diazonium salt and a photosensitized ester of a leuco vat dye compound are applied to the material and irradiated.

Inhibition of gas fading.

H. C. Olpin, E. Stanley, and A. E. McCarthy (to British Celanese Ltd.). USP 2 758 002, August 7, 1956.

Reducing or preventing gas fading in cellulose ester or ether fabrics by treatment with an alkali metal phthalate.

Screen printing.

R. R. Laupman (Netherlands). USP 2 758 540, August 14, 1956.

Screen printing apparatus in which, in the lifted position, the squeegee performs an even number of inoperative strokes, starting just before the squeezed-off printing paste and ending just behind the printing paste, and then performs fewer operative strokes.

Dyeing daylight fluorescent nylon.

J. L. Switzer (to Switzer Bros., Inc.). USP 2 759 786, August 21, 1956.

Production of washfast and lightfast daylight fluorescent nylon by dyeing nylon yarns in skeins or packages, loose filaments and flocks, or woven fabrics with daylight fluorescent acid dyestuffs in a dyebath containing a high percentage of a strong organic acid as the solvating agent.

Dyeing cellulose derivative/wool fabrics.

V. S. Salvin and P. A. Studer (to Celanese Corp. of America). USP 2 760 841, August 28, 1956.

Crockfast and lightfast union dyeings of wool/cellulose derivatives, e.g., cellulose acetate, are obtained in a single dyebath containing both wool and cellulose acetate dyestuffs by incorporating in the dyebath a mixture of selected nonionic and anionic dispersing agents.

MECHANICAL PROCESSES D 3

Handling continuous lengths of strand, ropes, etc.

J. J. Franklin (to Proctor & Schwartz, Inc.). USP 2 753 706, July 10, 1956.

Handling equipment for continuous lengths of material in strand or rope form, e.g., tubular knit fabric, which automatically compensates for changes in the rate of progress of the material handled.

Embossing rollers.

R. Hoffman (to Associated Dye and Print Co. Inc.). USP 2 756 669, July 31, 1956.

The rollers may be incorporated in machine already in use and give a uniform and permanent pattern.

Sheet hemming and hemstitching.

J. T. MacIsaac, Jr., (to Fieldcrest Mills, Inc.) USP 2 757 624, August 7, 1956.

Apparatus for successively severing fabric lengths, forming hems at each severed end, and then stitching.

Fabric finishing.

M. Decloux (Belgium). USP 2 758 354, August 14, 1956.

Finishing napped cloth to obtain relief effects by subjecting the nap to a scraping device which gathers the nap and pushes it upwards into crests to form undulations.

Tentering type drying apparatus.

B. Kawaguchi (Japan). USP 2 758 356, August 14, 1956.

Apparatus in which a fabric, supported by the tenter chain, can be carried up and down alternately in a vertical direction along a zigzag path and tentered and dried simultaneously in an almost tensionless state.

Permanent accordion pleating of polyamide fabrics by heat setting.

F. Bock and R. Hildebrand (Germany). USP 2 758 760, August 14, 1956.

Flocking.

T. Lindquist. USP 2 759 449, August 21, 1956.

An automatic flocking machine which may be adjusted to apply the precise desired amount of flock, the flock being oriented by an electrostatic field.

Tentering frame.

J. Kirkpatrick. USP 2 760 251, August 28, 1956.

A combined gripping and pin clip for a tentering frame which may be effectively employed as either a gripping clip or a pin clip.

Hosiery turner.

F. R. Shoaf. USP 2 760 696, 697, August 28, 1956.

Apparatus for automatically turning full fashioned hosiery inside out and stacking them in elongated, parallel positions as they are discharged.

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